Amendments to the Claims

Claim 1 (Currently Amended): An isolated DNA sequence comprising a nucleotide sequence ~~encoding for~~ which encodes at least part of the MonAIV polypeptide; wherein said at least part is a fragment of MonAIV ~~is a polypeptide~~ having at least one ~~enzyme~~ activity~~; and wherein said enzyme activity is~~ selected from the group consisting of:

a) ketosynthase (KS) activity,

b) ethylmalonate specific acyl transferase (AT) activity,

c) malonate specific acyl transferase (AT) activity,

d) dehydratase (DH) activity,

e) ketoreductase (KR) activity,

f) acyl-carrier protein (ACP) activity, and

g) enoyl reductase (ER) activity;

wherein the fragment of MonAIV having ethylmalonate specific acyl transferase activity is amino acids 592 to 932 of SEQ ID NO: 22.

Claim 2 (Currently Amended): A DNA sequence according to claim 1, wherein said DNA sequence comprises the complete monensin gene cluster which encodes for all of the gene products set forth in Table II.

Claim 3 (Currently Amended): A DNA sequence according to claim 1 which encodes ~~for~~ MonAIV which is SEQ ID NO: 22.

Claim 4 (Currently Amended): A DNA sequence according to claim 3 which comprises at least ~~part of~~ one ~~or more~~ of the following genes: *mon BI*, *mon BII*, *mon CI*, *mon CII*, *mon H*, *mon RI*, *mon RII*, *mon T*, *mon AIX* and *mon AX*.

Claim 5 (Currently Amended): A DNA sequence according to claim 4 comprising all of ~~the~~ said genes ~~listed therein or an allele, mutation or other variant thereof~~.

Claim 6 (Cancelled)

Claim 7 (Previously Presented): A DNA sequence according to claim 1, wherein said polypeptide has a single enzyme activity.

Claim 8 (Currently Amended): A DNA sequence according to claim 1, which further comprises a DNA sequence encoding ~~any~~ at least one ~~or more~~ of the domains and gene products as set out in Table I.

Claim 9 (Cancelled)

Claim 10 (Previously Presented): A recombinant cloning or expression vector comprising a DNA sequence according to claim 1.

Claim 11 (Currently Amended): A transformant host cell which has been transformed to contain a DNA sequence according to claim 1 and which is capable of expressing the polypeptide encoded ~~for~~ by said DNA sequence.

Claim 12 (Previously Presented): A hybridisation probe which is a DNA sequence according to claim 1.

Claim 13 (Withdrawn): A method of detecting a PKS cluster comprising using a probe according to claim 12 to detect a PKS cluster, optionally followed by isolation of the detected cluster.

Claim 14 (Withdrawn): A method of detecting genes comprising using a probe according to claim 12 which encodes at least part of a polypeptide having a known function to detect genes encoding polypeptides having analogous function.

Claim 15 (Withdrawn): A method according to claim 14 wherein the polypeptide of known function is AT of module 5 or the regulatory protein encoded by *mon RI*.

Claim 16 (Withdrawn): A hybridization probe comprising a polynucleotide which binds specifically to a region of the monensin gene cluster selected from *mon BI*, *mon BII*, *mon CI*, *mon CII*, *mon H*, *mon RI*, *mon RII*, *mon T*, *mon AIX* and *mon AX*.

Claim 17 (Withdrawn): A method of detecting the presence of a gene cluster which governs the synthesis of a polyether, which comprises using a probe according to claim 16, and optionally isolating a gene cluster detected thereby.

Claim 18 (Withdrawn): A method of detecting a gene comprising using a probe according to claim 12 which comprise a polynucleotide which binds specifically to a gene responsible for levels of activity of the monensin gene cluster, for detecting an analogous gene in a gene cluster for biosynthesis of another polyketide, optionally followed by a step of manipulating the gene detected thereby to alter the level of expression of said other polyketide.

Claim 19 (Withdrawn): A method according to claim 18 wherein the gene is a regulatory gene, resistance gene or thioesterase gene.

Claim 20 (Withdrawn): A method of expressing a heterologous gene in *S. cinnamonesis* comprising inserting said gene so that it is expressed under the control of the *mon RI* gene or variant and a monensin promoter.

Claim 21 (Withdrawn): A method of expressing a polyketide other than monesin which includes using a portion of the monensin gene cluster encoding a polypeptide having chain

terminating activity, comprising at least one of *mon AIX* and *mon AX* or a mutant, allele or other variant thereof encoding a polypeptide having chain terminating activity, to effect chain release of said polyketide other than monensin.

Claim 22 (Withdrawn): A method of synthesizing a polyketide other than monesin which includes using a portion of the monensin gene cluster encoding a polypeptide having carbon-carbon double bond isomerase activity comprising at least one of *mon BI* and *mon BII* or a mutant, allele or other variant thereof having isomerase activity to provide a desired stereochemical outcome in the synthesis of said polyketide other than monensin.

Claim 23 (Withdrawn): A polypeptide encoded by a portion of the monensin gene cluster, comprising at least one portion selected from *mon BI* and *mon BII* or a mutant, allele or other variant thereof, having carbon-carbon double bond isomerase activity, or at least one of mon AIX and mon AX or a mutant, allele or other variant thereof having chain terminating activity.

Claim 24 (Withdrawn): An epoxidase enzyme encoded by *mon CI* or a derivative or variant thereof having epoxidase activity.

Claim 25 (Withdrawn): A cyclase enzyme encoded by *mon CII* or a derivative or variant thereof having cyclase activity.

Claim 26 (Withdrawn): A method for the biosynthesis of a polyketide other than monensin which comprises using a portion of the monensin gene cluster encoding a peptide having epoxidase or cyclase activity, to provide a said activity in the biosynthesis of said polyketide other than monensin.

Claim 27 (Withdrawn): A process for producing a polyketide

containing a desired starter unit comprising providing a PKS gene having a loading module and a plurality of extension modules, wherein the loading module includes a KS_q domain derived from a KS domain of a monensin extension module.

Claim 28 (Withdrawn): A process according to claim 27 wherein the KS_q domain is derived from KS of module 5 of monensin.

Claim 29 (Withdrawn): A process according to claim 27 wherein the starter unit also includes an AT_q domain derived from an AT domain which is naturally associated with the KS domain.

Claim 30 (Currently Amended): A DNA sequence comprising ~~DNA~~ a nucleotide sequence encoding at least one polyketide synthase (PKS) comprising a loading module and a plurality of PKS extension modules, ~~and which can be expressed to produce a polyketide;~~

wherein at least one of said modules or at least one domain thereof is a monensin module or domain from MonAIV, wherein the ethylmalonate specific acyl transferase domain of MonAIV is amino acids 592 to 932 of SEQ ID NO: 22; and

wherein said MonAIV module or domain is contiguous ~~to said PKS~~ with a loading module or ~~a further PKS~~ an extension module or domain not naturally associated thereto ~~to which said monensin module or domain from MonAIV is not naturally contiguous~~;

provided that the nucleotide sequence is not ~~an~~ the erythromycin loading module[[,]] followed by the first and second extension modules of the erythromycin PKS ~~and~~ followed by the erythromycin chain-terminating thioesterase, wherein ~~in which~~ the ~~DNA encoding~~ acyltransferase (AT) of the first extension module ~~has been~~ is substituted ~~by DNA encoding an~~ by the ~~ethyl malonyl CoA~~ ethylmalonyl-specific AT5 of MonAIV ~~from the monensin gene cluster~~.

Claim 31 (Currently Amended): A DNA sequence according to claim 30 wherein said ~~further module or domain~~ loading module or extension module or domain not naturally associated with said MonAIV module or domain is also a monensin module or domain ~~or variant thereof~~.

Claim 32 (Currently Amended): A DNA sequence according to claim 30 wherein said ~~further module or domain~~ loading module or extension module or domain not naturally associated with said MonAIV module or domain is a module or domain of a PKS of a polyketide other than monensin.

Claim 33 (Currently Amended): A DNA sequence according to claim 30 wherein said loading module ~~is adapted to~~ loads a starter unit other than a starter unit ~~normally~~ naturally received by the adjacent extension module.

Claim 34 (Currently Amended): A DNA sequence according to claim 33 wherein said loading module comprises a KSq domain derived from a ketosynthase (KS) domain of a monensin extension module by mutating the active site cysteine residue to a glutamine.

Claim 35 (Withdrawn): A polyketide synthase encoded by the DNA sequence of claim 30.

Claim 36 (Withdrawn): A polyketide compound as produced by a synthase according to claim 35.

Claim 37 (Previously Presented): A vector containing a DNA sequence of claim 30.

Claim 38 (Previously Presented): A transformant cell transformed to contain a DNA sequence of claim 30.

Claim 39 (Withdrawn): A method of producing *S. cinnamonensis* capable of enhanced levels of production of monensin comprising engineering it to overexpress the *mon RI* gene.

Claim 40 (Withdrawn): A method according to claim 39 wherein said engineering comprises introducing at least one additional copy of the *mon RI* gene as shown in the appended sequence data or a variant thereof.

Claim 41 (Withdrawn): *S. cinnamonensis* containing multiple copies of the *mon RI* gene as shown in the appended sequence data and/or variant(s) thereof.

Claim 42 (Withdrawn): A method of producing monensin comprising culturing the organism of claim 41.

Claim 43 (Withdrawn): A process for expressing a gene heterologous to *S. cinnamonensis* comprising transforming *S. cinnamonensis* with DNA encoding a heterologous gene and expressing said gene under control of the activator gene *mon RI* or actII/orf4.

Claim 44 (Withdrawn): A process according to claim 43 wherein said heterologous gene is a PKS gene.

Claim 45 (Withdrawn) 13-Propyl erythromycin A.

Claim 46 (Cancelled)

Claim 47 (Cancelled)

Claim 48 (Previously Presented): A DNA sequence according to claim 1, which is part of nucleotides 12448-24564 of SEQ ID NO: 2.

Claim 49 (Previously Presented): A DNA sequence according to claim 34, wherein said monensin extension module is from module 5.